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ABSTRACT

One recommendation of the 1989 California Strategic Plan for Adult Education is the use of EduCard. EduCard, the Adult Education Access Card, is a means of giving learners access to information about educational opportunities and providing administrators with machine-readable information on learners' prior education and traiing. Three models are: (1) magnetic strip cards; (2) integrated circuit chips or "smart cards"; and (3) optical memory cards. An existing example, the Michigan Opportunity Card, is used by participants for skills assessment, job placement assistance, storage and retrieval of resumes, and information on training and educational services. Use of EduCard could develop into an integrated adult education data system that provides interagency information on demographics and learning outcomes and performance. Issues and recommendations regarding EduCard use are: (1) establishment of EduCard as a multiagency statewide program; (2) protection of learner privacy; (3) selection of one type of technology (integrated circuit cards are preferred for their low cost and security); (4) voluntary rather than mandatory use by participants; (5) involvement of all stakeholders in determining liability and financial policies and procedures; and (6) adoption of a uniform, comparable career assessment model for evaluating learner data in the system. (SK)

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EduCard™
Adult Education Access Card

Policy Option Paper on Strategic Recommendation 4

First Edition
August 17, 1990

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Letter of Transmittal

The **Education Access Card** (***EduCard***$_{TM}$) is one of fourteen recommendations set forth in the ***Adult Education for the 21st Century: Strategic Plan to Meet California's Long-Term Needs.*** It addresses the utility of using a learner "owned" information card that gives him or her immediate access to learning services. The card will utilize an information storage medium that a computer can read and write to, permitting learner information to be updated as needed. Access to levels of learner data will be strictly controlled on a "need to know" basis.

This policy options paper discusses (**1**) the recommendation, (**2**) related research and models which help elaborate on the *EduCard*$_{TM}$ design, (**3**) initial policy issues and options and (**4**) our proposals.

Based on this discussion, the Interim Steering Committee Members, its sub-committees, and leaders in the adult education programs and other interested persons can help us elaborate on and refine the proposals.

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The contents of this paper do not necessarily reflect the views or the following persons or institutions they represent:

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This paper has been prepared under Contract 7147 from the Adult Education Unit of the Youth, Adult and Alternative Educational Services Division of the California State Department of Education.

PMRA

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This paper has been prepared to summarize background information and outline possible policy decisions. The contents of this paper do not necessarily reflect the policies of the State Department of Education, Community Colleges, Interim Adult Education Steering Committee, or other institutions.

Executive Summary

The EduCard$_{TM}$ recommendation combines a bold approach to capturing the adult learner's attention with the practical needs of maintaining detailed and current information on adult learners.

This paper outlines the goals and priorities associated with the Adult Education Access Card (***EduCard***$_{TM}$) strategic recommendation. It is first of three working papers designed to guide and permit the continued analysis and examination of issues associated with its design and implementation.

The Recommendation

The *EduCard*$_{TM}$ is the symbol and the tool to facilitate the lifelong learning concept. Learners entering participating programs or (eventually) graduating from or leaving high school may be issued an ***EduCard***$_{TM}$. Information encoded on the card will tell the learner and the provider the person's educational record, eligibility for alternative programs, and certification of demonstrated skills. This encoded information which can be updated as appropriate will (1) simplify paperwork, (2) reduce administrative costs, and (3) make more sensitive learner, service, and labor market information available. It will expedite linking private funds with public resources.

Most importantly it will contain a record of a person's current and prior learning and training accomplishments and status in their present learning endeavors. This facilitates the use of independent study, computer based instruction and workplace instruction which can be competency and performance based, stressing learning outcomes rather than seat time. It also will reduce unnecessary testing and the filling of forms.

Two companion papers on the ***Integrated Adult Education Data System*** and the ***Community Adult Education Information Services*** are being researched and produced. These three papers combine to define the information system to be used in implementing the ***Adult Education Strategic Plan***.

Objectives of the *EduCard*$_{TM}$ Recommendation

The objectives of the *EduCard*$_{TM}$ are twofold. From the learner's perspective the card facilitates access to and information about relevant learning services and speeds referral and enrollment. From the providers viewpoint, the card enables rapid machine readable information pertinent to the learner's prior and current education and training skills to be input, stored and retrieved. Access to this information, demographic and learning oriented, would be protected on a "need to know" basis with the full record available to the learner at his or her request.

How the *EduCard*$_{TM}$ Process Works

The *EduCard*$_{TM}$ operates within tomorrow's adult education process. The process begins with a potential learner or group of learners (*e.g.* a business or public agency may also refer persons to pursue literacy, job skill or other types of learning):

- Individual learners go to a Community Adult Education Information Service Center.
- Upon arrival at the center, learners present their *EduCard*$_{TM}$. If they do not have a card, the intake is initiated.
- This card is used to access individual educational records and program eligibility status from an Integrated Data System.
- Existing educational records would provide information on the learner's skill attainment and educational needs in terms of standard Performance Measures used by all participating instructional providers as well as other assessment tools.

If initial or further assessment is needed, the learner can request further tests and counseling with resources available through the *EduCard*$_{TM}$. New assessment records and assessment costs are interactively entered into an Integrated Data System.

Once assessments determine the needs of the learner, a combination of counseling and interactive information technology is used to provide an impartial overview of programs that meet the learner's needs.

Once educational options are presented and discussed, the individual selects the program that best meets his or her learning goals. A quick check is made to insure that the program has an opening and the learner is referred to the program.

Upon checking in, the learner submits his or her *EduCard*$_{TM}$, which is used like a credit card to begin a billing process for services in accord with a system of funding policies and procedures designed to encourage program improvement, responsiveness, innovation and alternatives.

There are three basic models of the *EduCard$_{TM}$* technology: (1) the magnetic strip type card employed by automated teller machines (ATM) and credit cards, (2) the integrated circuit chip or "smart" card, and (3) the optical memory card. Within each model there are variations in design features. Each card has a medium upon which information can be written and stored and subsequently read by a machine linked to a computer. User transactions, based on a unique identifier, can be identified and stored, usually in the computer's fixed memory, and linked to the user's account.

Current development work in Michigan will provide substantial guidance in the refinement of the *EduCard$_{TM}$* model. Central to the Michigan system are (1) the integration of human service delivery programs, (2) a statewide information services system, and (3) an MIS which features the use of a learner's individual smart credit card (the *Opportunity Card*) to maintain his or her service information.

In the Michigan model participating provider organizations operate under the concept of a franchise. They take on specified responsibilities as partners in the Michigan opportunity card and human investment system. The stakeholder concept in the California adult education service delivery network will draw on features of the franchise model.

Policy Options Discussed

The research has identified five options for initial policy and design analysis. They are:

1. **Learner Privacy**
2. **Which Type of Technology to Pursue**
3. ***EduCard$_{TM}$* Use**
4. **Liability and Financial Issues**
5. **Standards for Assessment**

These policy options address key *EduCard$_{TM}$* design concerns.

The pros and cons of the options are discussed. They are also assessed using a common set of evaluation criteria. The criteria used are the same for the related data system options papers. These criteria are:

1. **Improve Learner Access**
2. **Stakeholder Acceptability**
3. **Ease of Use**
4. **Maintain Learner Privacy**
5. **Cost Effectiveness**
6. **Improve Accountability**

Using these criteria, an initial evaluation of each option's positive and negative impacts is made.

Policy Proposals

Our staff and Data and Information Subcommittee analysis has identified five proposals which begin to define the *EduCard*$_{TM}$ model. Readers are encouraged to identified other issues and options for continuing analysis. The proposals are:

1. **Establish the *EduCard*$_{TM}$ as a multi-agency access card maintained at the state level with the possibility of local augmentation.**
2. **Pay strict attention to learner privacy and rights in the *EduCard*$_{TM}$ design.**
3. **Use the integrated circuit technology.**
4. **Make *EduCard*$_{TM}$ use optional.**
5. **Involve stakeholders in liability and financial policies and procedures.**

The further development and analysis of the recommended *EduCard*$_{TM}$ options will be performed by the Adult Education Institute for Research and Planning under the guidance of the Interim Steering Committee and its subcommittees. The five proposals presented in this paper will be reviewed, revised and analyzed further during the feasibility analysis to gain clarity, acceptance to basic skills agencies, the business community, learners' groups and other stakeholders.

The policy proposals of the Interim Steering Committee will need to be reviewed by State Superintendent of Public Instruction, Bill Honig, and California Community College Chancellor, David Mertes, as well as heads of other participating agencies.

Chapter 1
Introduction and Overview

*The Adult Education Access Card (**EduCard$_{TM}$**) is a bold approach to capturing the attention of the adult learner and facilitating access to the potential range of educational and basic skill training services in California.*

This paper outlines the goals and priorities associated with the Adult Education Access Card (*EduCard$_{TM}$*) strategic recommendation. It is first of three working papers designed to guide and permit the continued analysis and examination of issues associated with its design and implementation. The paper is organized into four sections as follows:

- Introduction and Overview of Recommendation
- Review of Literature and Information
- Proposals to Implement Recommendation
- Conclusions and Future Actions

Two companion papers on the "Integrated Adult Education Data System" and the "Community Adult Education Information Services" are being researched and produced. These three papers combine to define the information system to be used in implementing the ***Adult Education Strategic Plan***. They also serve as the descriptive metaphor for the evolving collaborative adult education and basic skills training delivery system.

Overview of Recommendation

The demands and opportunities for the adult learner over the next several decades will be more diverse. Learning in all likelihood will continue to spread out from the classroom setting and training facility to a wider range of environments including learning labs, libraries, the workplace, the home, and community centers. We are entering an era of lifelong learning. California has an opportunity to take leadership in creating an environment to promote it.[1]

[1] *Adult Education in the 21st Century: Strategic Plan to Meet California's Long-Term Adult Education Needs*, 1989 Edition, Adult Education 2000 Project, 1988-1989 Adult Education Advisory Committee.

To make reasoned choices about which adult education services will be the most beneficial for the individual learner, several conditions are desirable, (1) there must be a range of adult education choices to address specific needs, (2) sufficient information and assessment must be available for the learner to make reasonable choices, (3) time consuming paperwork should be automated, and (4) the learner when making choices should be aware of the performance of the learning providers.

To address these concerns, the ***Adult Education for the 21st Century*** strategic plan has recommended three integrated information management strategies:

- The Community Adult Education Information Services (provider information and assessment centered)
- The *EduCard$_{TM}$* (learner centered)
- The Integrated Adult Education Data System (provider and learner centered)

The EduCard$_{TM}$ will be expected to empower users with greater access to educational programs.

The *EduCard$_{TM}$* is the subject of this option paper. It will be expected to empower users with greater access to educational programs. While it stands alone for the discussion of policy options, its use cannot be separated from the other two components of the adult education management information and performance system.

The *EduCard$_{TM}$* operates within tomorrow's adult education process. The process begins with a potential learner or group of learners (*e.g.* a business or public agency may also refer persons to pursue literacy, job skill or other types of learning):

- Individual learners go to a ***Community Adult Education Information Service Center.***
- Upon arrival at the center, learners present their *EduCard$_{TM}$*. If they do not have a card, the intake is initiated.
- This card is used to access individual educational records and program eligibility status from an ***Integrated Data System.***
- Existing educational records would provide information on the learner's skill attainment and educational needs in terms of standard ***Performance Measures*** used by all participating instructional providers as well as other assessment tools.

If initial or further assessment is needed, the learner can request further tests and counseling with resources available through the *EduCard$_{TM}$*. New assessment records and assessment costs are interactively entered into an Integrated Data System **(See Exhibit 1)**.

Once assessments determine the needs of the learner, a combination of counseling and interactive information technology is used to provide an impartial overview of programs that meet the learner's needs. This will include information such as the educational objectives of the programs, cost to the individual participant (if any), duration and scheduling, location, special features, assessments of performance, satisfaction of prior participants, and certification status in accord with state and regional program ***Quality Standards***. Once educational options are presented and discussed, the individual selects the program that best meets his or her learning goals. A quick check is made to insure that the program has an opening and the learner is referred to the program **(See Exhibit 1)**.

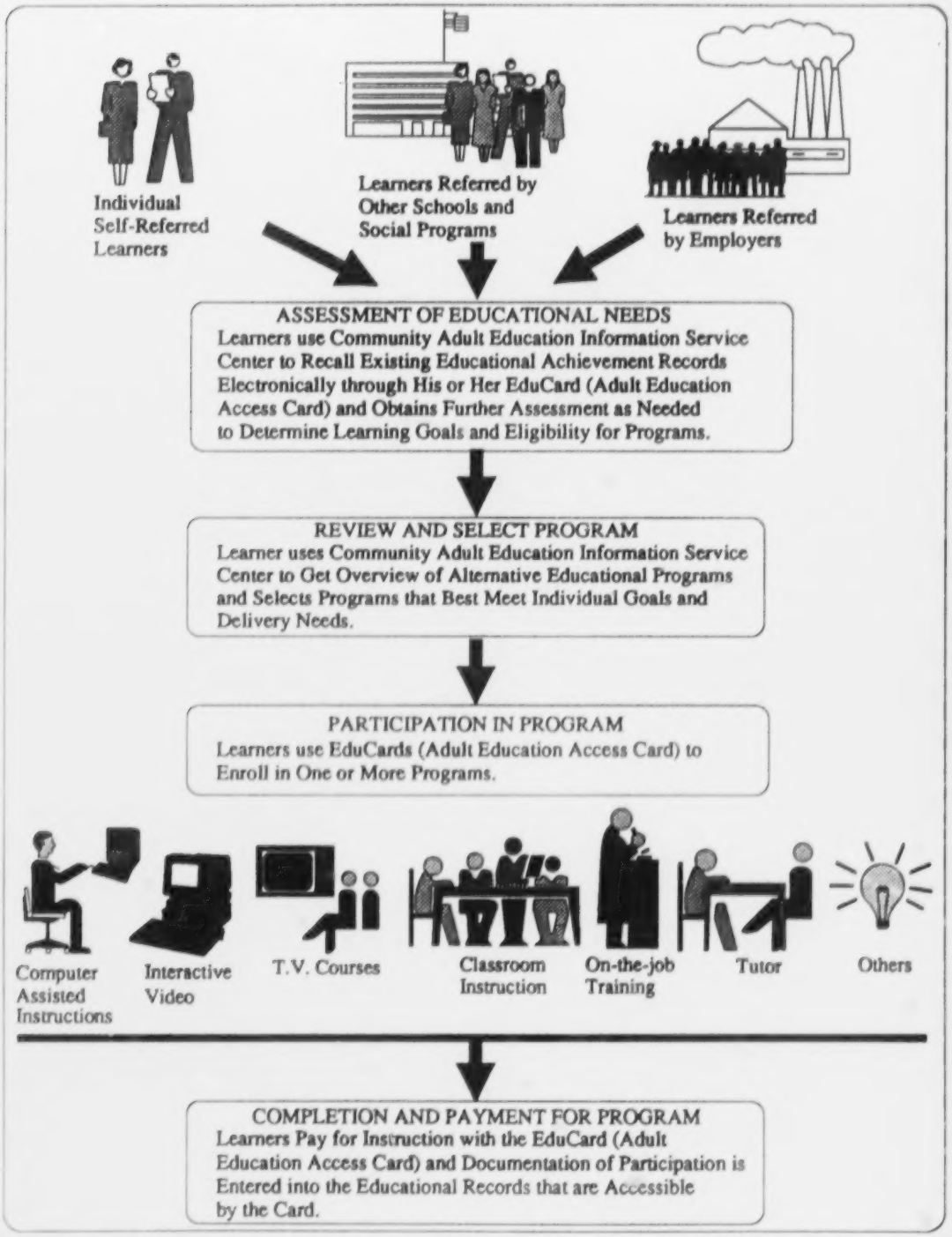
The Adult Education Access Card (EduCard$_{TM}$) is the symbol and the tool to facilitate the lifelong learning concept. It will contain a record of a person's current and prior learning and training accomplishments and status in their present learning endeavors.

The learner "checks in" with the program of choice (*e.g.* appears at locations, downloads through a modem linked to a home computer, rents a portable interactive instructional module, or meets a tutor). Upon checking in, the learner submits his or her ***EduCard$_{TM}$***, which is used like a credit card to begin a billing process for services in accord with a system of funding policies and procedures designed to encourage program improvement, responsiveness, innovation and alternatives.

The Adult Education Access Card (*EduCard$_{TM}$*) is the symbol and the tool to facilitate the lifelong learning concept. Learners entering participating programs or (eventually) graduating from or leaving high school will be issued an *EduCard$_{TM}$*. Information encoded on the card will tell the learner and the provider the person's educational record, eligibility for alternative programs, and certification of demonstrated skills. This encoded information which can be updated as appropriate will (1) simplify paperwork, (2) reduce administrative costs, and (3) make more sensitive learner, service, and labor market information available. It will expedite linking private funds with public resources.

Exhibit 1

HOW ADULT LEARNERS RECEIVE SERVICES


Individual Self-Referred Learners
Learners Referred by Other Schools and Social Programs
Learners Referred by Employers
ASSESSMENT OF EDUCATIONAL NEEDS
Learners use Community Adult Education Information Service Center to Recall Existing Educational Achievement Records Electronically through His or Her EduCard (Adult Education Access Card) and Obtains Further Assessment as Needed to Determine Learning Goals and Eligibility for Programs.
REVIEW AND SELECT PROGRAM
Learner uses Community Adult Education Information Service Center to Get Overview of Alternative Educational Programs and Selects Programs that Best Meet Individual Goals and Delivery Needs.
PARTICIPATION IN PROGRAM
Learners use EduCards (Adult Education Access Card) to Enroll in One or More Programs.
Computer Assisted Instructions
Interactive Video
T.V. Courses
Classroom Instruction
On-the-job Training
Tutor
Others
COMPLETION AND PAYMENT FOR PROGRAM
Learners Pay for Instruction with the EduCard (Adult Education Access Card) and Documentation of Participation is Entered into the Educational Records that are Accessible by the Card.

Most importantly it will contain a record of a person's current and prior learning and training accomplishments and status in their present learning endeavors. This greatly facilitates the use of independent study, computer based instruction and workplace instruction which can be competency and performance based, stressing learning outcomes rather than seat time. It also will reduce unnecessary testing and the filling of forms.

History of the *EduCard$_{TM}$* Recommendation

The proposed EduCard$_{TM}$ is intended to be combined with recommendations to develop an Integrated Adult Education Data System and an community information services system to form the core of a "collaborative infrastructure."

The recommendation for *EduCard$_{TM}$* comes from a long-term planning process initiated in October 1988 by the Adult Education Unit of the Youth, Adult and Alternative Educational Services (YAAES) Division of the California Department of Education (CDE). It was developed under the guidance[2] of a twenty-six member Adult Education Division Committee appointed by State Superintendent of Public Instruction Bill Honig. Their charge was to develop a long-term vision of adult education in the 21st century.

The proposed *EduCard$_{TM}$* are intended to be combined with recommendations to develop an Integrated Adult Education Data System and an community information services system to form the core of a "collaborative infrastructure." Its concept and design has been influenced substantially by the State of Michigan's Human Investment System.[3]

It is next to impossible to maintain a history of a person's learning accomplishments. The practical result is that there is continual assessment, testing and enrollment in formal, informal, short and long term education and basic skills training which is sometimes redundant and usually time consuming.

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[2] Guidance refers to the process of assisting learners in understanding and making decisions regarding program options. The guidance process is facilitated by the program, labor market, and other information available in the community information services system.

[3] The idea for a Community Adult Education Information Services system was in part, modeled after the Human Investment System currently under development in the State of Michigan. Under leadership from the Governor, Michigan had created a Cabinet Council of Human Investment to implement a "demand driven" investment of human resource development system in response to research indicating that the state was facing serious problems in providing an educated and trained workforce.

An Adult Literacy Task Force had found a maze of programs and resources with differing intake polices, eligibility policies and outcome criteria. It recommended polices to coordinate services and enable the learner to make choices on how and when to obtain basic skills training and education. Central to the Michigan system are (1) the integration of human service delivery programs, (2) a statewide information services system, and (3) an integrated data system which features the use of a learner's individual smart credit card to maintain his or her service information.

One of the early products has been a directory of job training and related services that identifies state and local, by county, agencies and programs that have official responsibilities with the some 60 job training programs in the state. Participant categories are identified by icons for quick recognition (***Creating a Human Investment System: Report to the Governor***, Michigan Job Training Coordinating Council, March 1989; ***The Michigan Human Investment Fund and the Michigan Opportunity Card***, State of

Recommendation 4
EDUCARD$_{TM}$
(ADULT EDUCATION ACCESS CARD)

Adults should be issued a credit card-like device which uses local and statewide computers in order to:

- Empower individuals as educational consumers to access all available educational opportunities.
- Facilitate access and store individual educational records (*e.g.* assessment test scores, certifications, etc.).
- Reduce duplication of training and assessment.
- Ease process of determining individual eligibility for programs.
- Use a common format to report individual educational records from multiple programs.
- Provide an efficient means of matching private donations with public education funds.

The *EduCard$_{TM}$* would also dramatize the availability of educational services and facilitate storage and access of individual educational records.

Often this education and skills training is not credited or recognized. The *EduCard$_{TM}$* presumption of keeping an accurate record, subject to the learner's check and correction, enabling the learner and his or her counselors to make choices about his or her options. Making this record the property of the learner and facilitating his or her shopping for appropriate services is most attractive.

The idea for the *EduCard$_{TM}$* was first popularized when the Program Administrator of the Adult Education Unit, Dr. Ray Eberhard, Strategic Plan Advisory Committee members and Strategic Plan researchers visited the State of Michigan to discuss the Michigan Human Investment Fund and its Human Investment System.

Under leadership from the Governor, Michigan had created a Cabinet Council on Human Investment to implement a "demand driven" investment of human resource development funds in response to research indicating that the state was facing serious problems in providing an educated and trained workforce.

Michigan, January 1989, and *Investing in People: A Directory of Michigan's Job Training and Related Services*, Governor's Office for Job Training, Vol. 4, 1988).

An Adult Literacy Task Force had found a maze of programs and resources with differing intake polices, eligibility policies and outcome criteria.

An Adult Literacy Task Force had found a maze of programs and resources with differing intake polices, eligibility policies and outcome criteria. It recommended polices to coordinate services and enable the learner to make choices on how and when to obtain basic skills training and education.[4]

Centrai to the Michigan system are (1) the integration of human service delivery programs, (2) a statewide information services system, and (3) an integrated data system which features the use of a learner's individual smart credit card to maintain his or her service information.

This *Michigan Opportunity Card* when fully implemented is expected to enable every Michigan adult to obtain, at no cost, assistance to improve his or her basic education and training skills. Designed like a credit card, it can hold key information on the cardholder and prior education and training experiences in a computer chip implanted in the card. This "smart" card will provide access to the following services:[5]

- **Assessment** of cardholder skills and eligibility for existing education and training programs
- **Inventory** of basic skills education and training programs available in the cardholder's community
- **Personal Action Plan** to upgrade the cardholder's skills and education
- **Referral** to the appropriate training and education services
- **Job Placement Assistance**
- **A Basic Skills Account and Other Accounts** to help persons obtain general or specific skills necessary for the current workplace

Upon reflection, the California strategic plan advisors and planners concluded that this approach would be very useful in creating a "marketplace" for education and training services and would provide a means for improving data quality and streamlining the data collection in these programs. This opportunity was endorsed by the Strategic Plan Advisory Committee who also identified measures to recognize the success of the *EduCard™* and challenges which must be addressed in its development.[6]

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[4] ***The Michigan Human Investment Fund and the Michigan Opportunity Card***, State of Michigan, January 1989.

[5] ***Ibid.*** "Smart" refers to the ability to read and write information directly to the card, permitting current transaction information to be stored permanently on the card, accessed via computer and revised.

[6] "Summary of July 1989 Advisory Committee Meeting and Project Review," Adult Education Institute for Research and Planning, October 16, 1989. At its final meeting, the California Adult Education Strategic Plan Advisory Committee was divided into several

Objectives of Recommendation

The objectives of the *EduCard$_{TM}$* are twofold. From the learner's perspective the card facilitates access to and information about relevant learning services and speeds referral and enrollment. From the providers viewpoint, the card enables rapid machine readable information pertinent to the learner's prior and current education and training skills to be input, stored and retrieved. Access to this information, demographic and learning oriented, would be protected on a "need to know" basis with the full record available to the learner at his or her request. **Exhibit 2** organizes these objectives into four categories.

The parameters for the design and use of the *EduCard$_{TM}$* are the subject of this paper. In the process the objectives can be reexamined and the policy issues associated with its design and testing refined.

Exhibit 2
OBJECTIVES OF RECOMMENDATION

FACILITATE LEARNER CHOICE
- **Easy Access to Relevant Services**
- **Record of Prior Education and Training**
- **Speed Assessment and Referral**

IMPROVE DATA MANAGEMENT
- **Card Easy to Update**
- **Card Provides Instant Data and Avoids Unnecessary Forms**
- **Card Avoids Unnecessary Assessment and Testing**

PROMOTE MARKETPLACE FOR SERVICES
- **Easy to Shop for Services**
- **Simplifies Eligibility Determination**
- **Matches Cardholder's Needs with Provider's Services**

PROMOTE LIFELONG LEARNING
- **Recognized Need for Retraining**
- **Facilitates Public-Private Training Collaboration**
- **Card Represents a Skills Account Which Can Be Used as Needed**

work groups to identify success factors and challenges. The "Access to Users" subcommittee identified these indicators for the success of the *EduCard*. Specifically, it would (1) reduce administrative costs, (2) efficient use of staff time; (3) use card for confidentiality, (4) design the card beyond its current needs, and (5) make it an entitlement type card; avoid frequent enhancements requiring reissuing the card.

Challenges identified to the use of the development of the *EduCard* were: (1) expect possible high costs, (2) develop a sliding scale if the user pays, (3) avoid using the card to limit the ability of a person to meet learning goals; and frequent enhancements require reissuing

Chapter 2

Review Of Literature and Information

The ***EduCard***$_{TM}$ *combines current and near future technology with the need for the Learner to more effectively make informed learning choices, and the Provider to measure progress and goal attainment.*

The literature review and background research look further at the intent and likely applications of the Adult Education Access Card (***EduCard***$_{TM}$), current public sector uses, and the nature of the technology. This literature review and background research will carry on into the next developmental paper.

General Literature and Background

The *EduCard*$_{TM}$ technology has several features of interest in setting the stage for examining policy issues associated with its design and use. These features include (1) the nature of the card technology, (2) its current uses, and (3) its projected uses. The use of the card as the symbol for life long learning and the ability to shop for appropriate education and training services is implied in the several models being tested currently.

HOW THE *EDUCARD*$_{TM}$ TECHNOLOGY WORKS

There are three basic models of the *EduCard* technology: (1) the magnetic strip type card employed by automated teller machines (ATM) and credit cards, (2) the integrated circuit chip or "smart" card, and (3) the optical memory card. Within each model there are variations in design features. Each card has a medium upon which information can be written and stored and subsequently read by a machine linked to a computer. User transactions, based on a unique identifier, can be identified and stored, usually in the computer's fixed memory, and linked to the user's account.

CURRENT USES OF THE SMART CARD TECHNOLOGY

We are aware of two major public policy experiments using the "smart card" technology.

As of this writing, we are aware of two major public policy experiments using the "smart card" technology. The Michigan Opportunity Card model is the most germane and will be discussed further. A three state U.S. Department of Agriculture project is testing the use of electronic benefits transfer (EBT), also called electronic funds transfer (EFT). In addition the USDA is initiating a feasibility study into the use of the smart card technology. The county level tests of the EBT approach are occurring in Minnesota, Pennsylvania, and Maryland using electronic benefits instead of the coupons in its food stamp program, and electronic funds transfer to a debit card rather than checks payments.

The state welfare agencies have joined with the U.S. Department of Agriculture, and the U.S. Department of Health and Human Services to test the use of an electronic benefits/electronic fund transfers (EBT/EFT) with the food stamp program. The objective is to demonstrate that an EBT program can work effectively and is acceptable to participants at costs less than those associated with the current coupon system. This cost effectiveness objective assumes that the EBT program will have no future utility without having reduced costs.[7]

Secondary objectives of the demonstrations are to:

(1) Improve service delivery and program accountability.

(2) Increase state personnel productivity.

(3) Reduce administrative costs.

(4) Enhance compliance with federal guidelines.

(5) Streamline operations by reducing paper processes.

(6) Reduce the stigma associated with being a welfare recipient.

While Adult Education Institute researchers have not seen these programs, the model is along the following lines. Eligible welfare recipients receives a benefits card with the benefit type and benefit amounts on a credit type card. Each applicant receives a personal identification number (PIN) encoded on the card. Upon receipt of the card, the user will be given an audiovisual presentation on the use of the card.

[7] Timmons, William J., "Arizona EBT Project," ***EFT Today***, April 1989, page 17. Arizona's Department of Economic Security participated in the feasibility phase of the USDA EBT/EFT experiments and decided not to continue. The project required substantial system design and computer costs, which conflicted with other DES priorities.

The cardholder can use the debit card to access Aid to Families with Dependent Children (AFDC) cash benefits at area ATMs and point of sale machines in grocery stores that elect to distribute cash. The AFDC cash benefits uses standard ATM procedures.

The cardholder can use the same card to access food stamp benefits at point of sale machines and day care benefits at participating day care centers and day care homes.

At the grocery checkout lane, the electronic benefits card is run through the terminal reader, the clerk enters the transaction value for cash or food on the keyboard and the cardholder enters the PIN number on a keypad. A transaction completed message is displayed on the terminal, the receipts are printed and the cardholder's account is debited. If the transaction cannot be completed, the reason (*e.g.* lack of funds, invalid PIN) is displayed on the screen.

Manual backup procedures to be used when there is system failure are part of the plan. Cardholders will not be able to charge unauthorized items (liquor, tobacco, non-food items) with the food stamp benefits. Point of sale equipment will be provided to the retailer at no cost.

An implications for California is the fact that a welfare recipients are perceived as living in a cash economy rather than in a credit card one. We should be able to obtain evaluative evidence of how well the welfare cardholders understand and make use of the new technology. This is a concern expressed by some adult educators and state adult education staff regarding the *EduCard*.[8]

Riverside Community College

The Riverside Community College District has experimented briefly with the smart card in its student information system permitting the card to store and read the student's academic history with either a smart phone or a personal computer using attached smart card reader. The experiment was halted after the initial design and testing phase.[9]

[8] "Summary of July 1989 Advisory Committee Meeting and Project Review," *Op. Cit.*, page 2.

[9] Bell, David J., Director, Computing Services, "Integrating New Technologies with Matriculation Efforts Using Smart Technology," Contract No. 87-0736, Riverside Community College District, June 30, 1989, and phone discussion with Mr. Bell, Project Manager.

Generic Uses

The major generic experiment with the smart card is in France where *Carte Bleue* ordered twelve million smart cards in 1985 of which about one million were delivered by late 1988. Another article places the number of smart cards in France at 70 million.[10] In the U.S., Master Card has been conducting an 18 month test program in Maryland and Florida using over 30,000 cards. In Japan, Visa International is testing the "supersmart" card with keyboard and display in partnership with Toshiba. In Norway, a bank consortium is said to have ordered a half million smart cards.[11]

The multi-function features of a smart card with substantial read only and read-write memory and a visual display suggests that smart cards can become the source of information for many unrelated purposes from bank accounts, to point of purchase uses, to library, medical and educational activities.

The smart card, usually based on a magnetic strip, is finding niches primarily as debit cards for telephone, parking, photocopy, and mass-transit fares. In his ***Scientific American*** review of the status of the smart card, Paul Wallich notes that the major issue regarding the future of the smart card is whether smart cards provide a more cost effective form of transaction management than current "dumb" (magnetic) cards. This essentially has to do with the amount of information that must be carried on a card in a decentralized manner rather than coded information which permits the user to access central computers for designated transactions.

FUTURE USES OF SMART CARD TECHNOLOGY

The smart card's primary long term use appears to be in the electronic banking arena.[12] Terms like "electronic purse" and "intelligent token" are being used in the literature to describe the high end, multifunction uses under analysis. Cards that have embedded calculators can be used in various economic transactions and bill paying activities with the information being updated at banks and on the user's card.

The multifunction features of a smart card with substantial read only and read-write memory and a visual display suggests that smart cards can become the source of information for many unrelated purposes from bank accounts, to point of purchase uses, to library, medical and educational activities. These unrelated activities can be stored, encrypted and used from the same card. For example, in the case of the USDA EBT tests, other entitlements like the Women, Infants and Children (WIC), Unemployment Insurance, Medicaid and

10 "Marketing a New Technology", ***Marketing Management***, July 1988, page 38.

11 Wallich, Paul, "Not in the Cards? The smart card revolution is still waiting to happen." ***Scientific American***, January 1989, page 101.

12 Timmons, *Op. Cit.*, page 18; and Hardy Tichenor, Einar Asbo and Gretchen McCoy, "Visa SuperSmart Card Applications and Technology," in ***Smartcard 2000: the Future of IC Cards***, D. Chaum and I. Schaumuller-Bichl (Eds.), North Holland, 1989.

Child Support could be added to the benefits listings on the card.[13]

The attractiveness to financial institutions is that the cardholder pays at the point of purchase and the institution gets the use of the money until the transaction clears. In the present credit card system the cardholder gets the advantage of the "float."[14]

NEED FOR AN INTEGRATED MANAGEMENT INFORMATION SYSTEM (MIS)

There is no integrated data system in California for adult education nor is there a data system that combines data from adult and vocational education with training and employment programs.

The objective of the adult education integrated data system is to provide current, accurate and appropriate information on the delivery of adult education services to citizens of California. Learner data from programs like IRCA, GAIN and JTPA are available, although cross agency comparisons cannot be model. These data, especially program performance and learner characteristics data, are for the most part currently not available, making it difficult to determine the success of current interventions, and making it more difficult to prepare for the new knowledge and skills that adults will need as we approach the 21st century.

There is no integrated data system in California for adult education nor is there a data system that combines data from adult and vocational education with training and employment programs. Likewise there is no learner centered data system for adult education which maintains detailed information on persons enrolling and completing adult education.

Adult education programs report numbers of students served by the ten authorized areas. They are not required to report much information "about categories, courses, or students" to the California Department of Education.[15] The data are often noncomparable among providers. Consequently, local and state level administrators and policy makers lack accurate and timely information on:

- learner needs
- learner demographics
- learner diagnostics
- learner achievements
- services delivered
- service definitions

[13] Timmons, *Op.Cit.*, page 18.

[14] Wallich, *Op. Cit.*, page 101.

[15] "Meeting California's Adult Education Needs: Recommendations to the Legislature in Response to Supplemental Language in the 1987 Budget Act," California Postsecondary Education Commission, October 1988, especially pages 23-26.

- cost effectiveness
- provider characteristics

Moreover, the need for and benefit from adult education is rarely evaluated or assessed.[16] Therefore, limited data exist on the costs and benefits of alternative instructional strategies, working with high risk learners, and setting instructional priorities.

The corollary argument is that reporting requirements, data systems and program planning and evaluation are expensive and their introduction will increase the costs of adult education.

Other training and employment preparation programs, especially those federally funded are required to maintain and report more detailed user and provider information. Their reporting requirements and data definitions must be taken into consideration in the design of an adult education and basic skills integrated data system.

INVENTORY OF ELIGIBLE PROGRAMS

It is expected that the *EduCard™* and the integrated education and training system will address learners' development goals. These goals will include:

- GED completion / Attainment
- Employability skills training
- Workforce literacy
- Small business / Self employed
- Employment
- Occupational training
- Parenting skills
- Enhanced employability
- ABE / ESL completion
- Career advancement
- Economic self sufficiency
- Life management skills

Building an integrated data system over time presumes that there will be a range of stakeholders and collaborating programs. Those programs and agencies likely to consider participation include:

(1) Providers:

- Adult schools
- Community colleges
- Regional Occupational Programs (ROPs)

[16] *Ibid.*

- Continuation schools
- Libraries
- Community based organizations
- Proprietary organizations
- Prison and corrections facilities
- California Conservation Corps
- Department of Rehabilitation
- Employers

(2) **Programs:**

- English as a second language (ESL)
- Elementary basic skills
- Older adults
- Citizenship
- High school diploma (GED)
- Substantially handicapped
- Home economics
- Parent education
- Health and safety
- Vocational education
- Employment Training Panel (ETP)
- Carl Perkins Vocational Education Act (VEA)
- Job Training Partnership Act (JTPA)
- Greater Avenues for Independence (GAIN)
- Immigration Reform and Control Act (IRCA)
- Apprenticeship
- Vocational rehabilitation
- Bilingual Education Act

The "California model" stresses the interaction and linkage among human service and information management transactions.

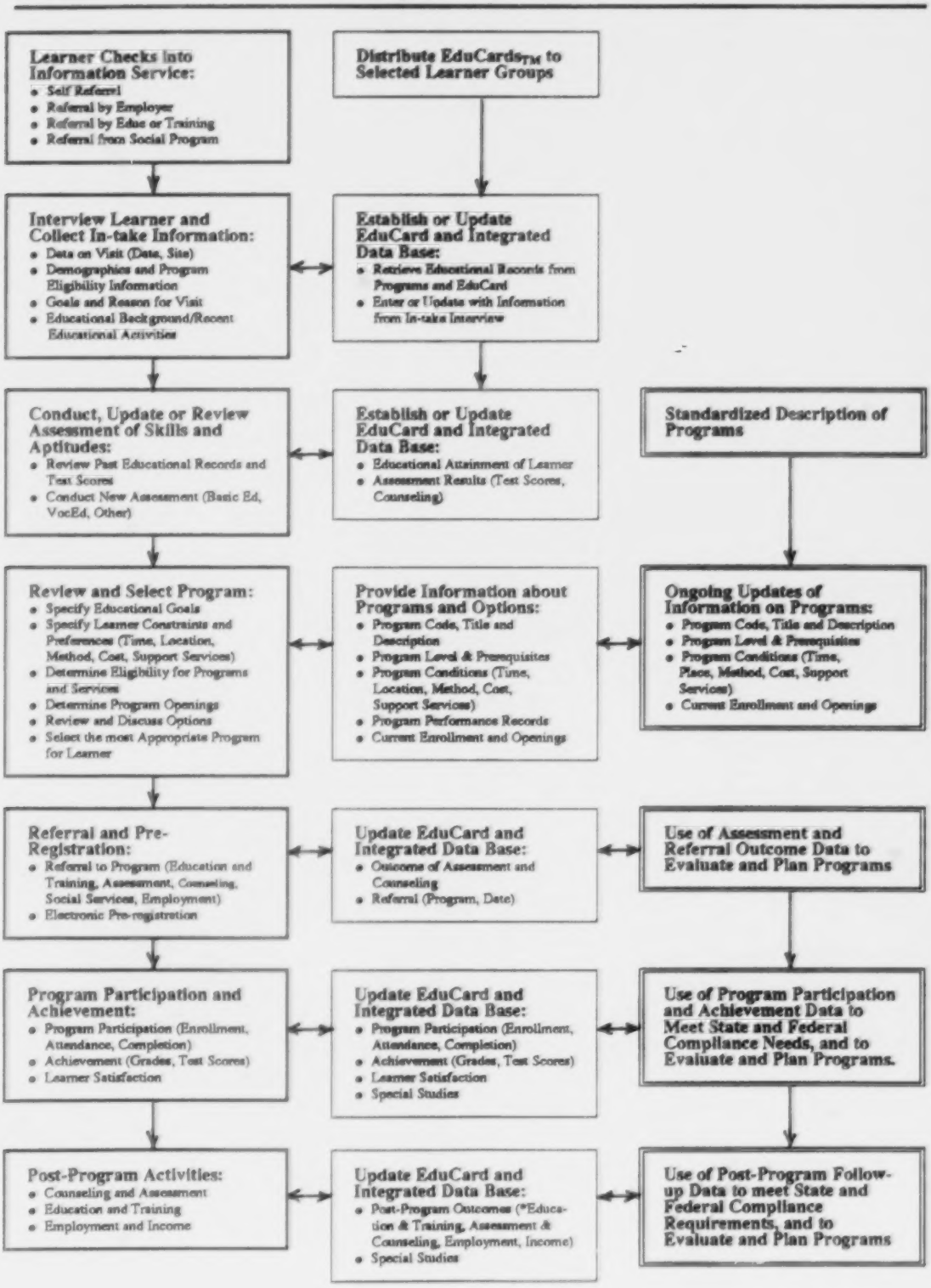
Participants in the integrated data system will evolve over time. Initially, the ten adult education program areas, ESL programs and possibly the ETP are expected to be the core of the data system.

EMERGING CALIFORNIA MODEL

The interaction between the learner's component (*EduCard™*), community information services component, and the provider's component is displayed in **Exhibit 3**. In this sense the model mirrors a learner's progress through an optimal adult education assessment and learning process.

This overview forms the basis of what we call the "California model" of the integrated adult education services management services information system. This model, descriptive in nature, stresses the interaction and linkage among human service and information management transactions. At the moment, it stresses the process of information development and the relationship between the three database components (community information system), provider information component, and learner information (*EduCard™*).

Exhibit 3
OVERVIEW OF COLLABORATIVE INFRASTRUCTURE FUNCTIONS


Assessment and Placement of Learners:
Maintenance and Use of EduCard and Integrated Data System:
Planning and Describing Programs:
Learner Checks into Information Service:
• Self Referral
• Referral by Employer
• Referral by Educ or Training
• Referral from Social Program
Distribute EduCards™ to Selected Learner Groups
Interview Learner and Collect In-take Information:
• Data on Visit (Date, Site)
• Demographics and Program Eligibility Information
• Goals and Reason for Visit
• Educational Background/Recent Educational Activities
Establish or Update EduCard and Integrated Data Base:
• Retrieve Educational Records from Programs and EduCard
• Enter or Update with Information from In-take Interview
Conduct, Update or Review Assessment of Skills and Aptitudes:
• Review Past Educational Records and Test Scores
• Conduct New Assessment (Basic Ed, VocEd, Other)
Establish or Update EduCard and Integrated Data Base:
• Educational Attainment of Learner
• Assessment Results (Test Scores, Counseling)
Standardized Description of Programs
Review and Select Program:
• Specify Educational Goals
• Specify Learner Constraints and Preferences (Time, Location, Method, Cost, Support Services)
• Determine Eligibility for Programs and Services
• Determine Program Openings
• Review and Discuss Options
• Select the most Appropriate Program for Learner
Provide Information about Programs and Options:
• Program Code, Title and Description
• Program Level & Prerequisites
• Program Conditions (Time, Location, Method, Cost, Support Services)
• Program Performance Records
• Current Enrollment and Openings
Ongoing Updates of Information on Programs:
• Program Code, Title and Description
• Program Level & Prerequisites
• Program Conditions (Time, Place, Method, Cost, Support Services)
• Current Enrollment and Openings
Referral and Pre-Registration:
• Referral to Program (Education and Training, Assessment, Counseling, Social Services, Employment)
• Electronic Pre-registration
Update EduCard and Integrated Data Base:
• Outcome of Assessment and Counseling
• Referral (Program, Date)
Use of Assessment and Referral Outcome Data to Evaluate and Plan Programs
Program Participation and Achievement:
• Program Participation (Enrollment, Attendance, Completion)
• Achievement (Grades, Test Scores)
• Learner Satisfaction
Update EduCard and Integrated Data Base:
• Program Participation (Enrollment, Attendance, Completion)
• Achievement (Grades, Test Scores)
• Learner Satisfaction
• Special Studies
Use of Program Participation and Achievement Data to Meet State and Federal Compliance Needs, and to Evaluate and Plan Programs.
Post-Program Activities:
• Counseling and Assessment
• Education and Training
• Employment and Income
Update EduCard and Integrated Data Base:
• Post-Program Outcomes (*Education & Training, Assessment & Counseling, Employment, Income)
• Special Studies
Use of Post-Program Follow-up Data to meet State and Federal Compliance Requirements, and to Evaluate and Plan Programs

In this model several sets of learner activities are considered the domain of the *EduCard$_{TM}$*. They include:

(1) Assessment and Placement of Learners

(a) Learner checks into information service
(b) Interview learner and collect intake information
(c) Conduct, update or review assessment of skills and aptitude
(d) Review and select program
(e) Referral and pre-registration

To implement and refine the evolving "California infrastructure model," the Michigan experience is useful. They have established an inter-agency framework for their Opportunity Card and are in the stage of testing its use in selected regions.

MICHIGAN OPPORTUNITY CARD

Current efforts in the State of Michigan offer the best guide to a major statewide effort to invigorate and create a human resource investment system. Research showed that the state was faced with serious labor force problems.[17] With pressure and initiative from the private sector and the leadership of the Governor, Michigan has embarked on an extensive campaign to create an "efficient, coherent and user friendly job training system."[18]

In 1988, the Governor's Council on Human Investment's **Adult Literacy Task Force** recommended an action plan to address the skills gap crisis. The new skills development system is based on five principles. The training and education system must:[19]

- be learner driven and learner sensitive
- emphasize shared responsibility of the stakeholders
- empower individuals to invest in themselves
- be learner-friendly
- be accountable

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[17] *Countdown 2000: Michigan's Action Plan for a Competitive Workforce*, Governor's Council on Human Investment, Adult Literacy Task Force, March 1988, page v.

[18] *Creating a Human Investment System: Report to the Governor*, Job Training Coordinating Council, March 1989, transmittal letter.

[17] *Countdown 2000, Op. Cit.*, defines Michigan's labor force needs by the year 2000 and recommendations to meet them.

From these principles came eight recommendations of which two are especially important to this paper.[20]

(1) Simplify access to all adult training and educational services, focusing on a common system so that all citizens can participate in the development and management of their own skill enhancement plan.

(2) Develop a skills assessment tool for measuring Michigan's work readiness goal and definition to use with each participant in all training and educational programs. The assessment will be used in determining incoming skill levels (and the mix of services required), progress toward completion, and in measuring effectiveness of programs.

Central to the Michigan system are (1) the integration of human service delivery programs, (2) a statewide information services system, and (3) an MIS which features the use of a learner's individual smart credit card (the Opportunity Card) to maintain his or her service information.

In the Michigan model participating provider organizations operate under the concept of a franchise. They take on specified responsibilities as partners in the Michigan opportunity card and human investment system.

In the Michigan model participating provider organizations operate under the concept of a franchise. They take on specified responsibilities as partners in the Michigan opportunity card and human investment system.[21] The stakeholder concept in the California adult education service delivery network will draw on features of the franchise model.

The Opportunity Card will be used by participants to accomplish the following:

- assess their skills
- develop a personal skill enhancement plan
- learn about training and education services, including job trends and salaries
- receive job placement assistance
- store and hold a resume on their card for easy access and updates
- receive tuition assistance

Targeted users of the card include graduating high school seniors, Michigan Youth Corps participants, and workers who lose their jobs due to plant closures and layoffs.[22]

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20 *Ibid.*, pages v-vi.

21 "Franchise Standards - Issues and Options: A Workgroup Report to the Michigan Human Investment Fund Board," October 1988, especially pages 9-16.

22 "Michigan Opportunity Card," Governor James J. Blanchard's 1989 State of the State Message, February 7, 1989.

The model has been developed and tested using a prototype card. Its implementation will begin at the two county *beta* test sites in Kalamazoo and St. Joseph counties in the spring of 1990, with the actual testing to begin in the fall.[23]

The Opportunity Card will use the integrated circuit card technology. Information will be input to and read from the card via card readers serving as peripheral devices to the local microcomputer-based information system. The integrated circuit chip being used will hold about 2000 characters of information. Its current cost is about $12.00.[24]

Planning Issues

The *EduCard™* is viewed as one component in an integrated data system. Its purpose is to facilitate data entry and accuracy and to entitle the user to shop for education and training services in a local region or statewide. This empowerment and the creation of a cross agency data system have major implications for California's design and delivery of basic skills education and training services.

Information from the adult education and basic skills card will be stored in a learner database. This database can be distributed among community information services and local providers as well as being centralized, probably with the Adult Education Institute during the design phase. This master database will provide the means to monitor service delivery and begin to set realistic standards for performance measurement.

It is expected that the learner based information will include:[25]

- the unique identifier[26]
- previous educational records
- relevant assessment information
- demographic and program eligibility information
- referral and learner goals (plan) information
- education, training, and employment services received
- supportive services received

[23] Phone conversation with Allen Gandy, Coordinator, Special Projects and Services, Kalamazoo Valley Community College, Kalamazoo, Michigan.

[24] *Ibid.*

[25] These data elements are considered as prototype to be refined in later design stages.

[26] The near future use of a completely unique identifier like a signature or fingerprint is optimal because then one does not have to rely on a social security number or number code which can be forgotten or accessed by other users.

- pre and post participation testing information
- learner satisfaction
- a resume of learning related accomplishments

In order to begin the design and testing of the *EduCard*$_{TM}$ a number of policy decisions must be considered to guide the process. These policy decision areas include:

(1) Protection of Personal Privacy
(2) Selection of Technology
(3) Participations of Learners
(4) Liability Issues
(5) Standards for Learner Plans

This section identifies the central issues as options and discusses them.

Statutory, ethical and practical requirements dictate that learner privacy be insured by controlling access to personal information, making the information available to the learner upon request, and using the cards encryption features. These privacy issues need to be addressed.

The smart card concept presupposes the creation of an integrated adult education and basic skills training system. It will enable easy access to services and the tracking of services delivered and their outcomes. It presupposes an aggressive outreach commitment to reduce illiteracy and the lack of basic skills. In this context the *EduCard*$_{TM}$ recommendation is a recommendation to begin to build a comprehensive adult education and basic skills training system that crosses program and sponsoring agency boundaries.

There is a substantial history, learning and set of policies regarding access to student information. There are standard procedures to control levels of access to computer based information.

Before addressing other policy and design issues, the Interim Steering Committee should pay particular attention to issues related to mandating precise and detailed policies and procedures protecting the privacy of learner information.

While this technically is not necessary, the fact that the *EduCard*$_{TM}$ is a bold departure from current access and information management approaches strongly suggests that there should be a continued scrutiny to the protection of learner privacy.

There is a substantial history, learning and set of policies regarding access to student information. There are standard procedures to control levels of access to computer based information. Finally the features of the *EduCard*$_{TM}$ itself make privacy and security easier.

The *EduCard*$_{TM}$ addresses the program integration, information management, and performance measurement concerns which hinder the delivery of adult education and

basic skills training programs. However, it has marginal utility unless it addresses more than the adult education and non-credit education services of the California Department of Education and Chancellor's Office of the California Community Colleges.

The range of stakeholders and collaborating programs is expected to increase making the *EduCard™* very useful, and eventually indispensable to the conduct of collaborative services.

This anticipated multi-agency environment can complicate learner privacy and information security if procedures and policies are not anticipated from the very start.

It is the future prospects of the *EduCard™* which excites the possibility of its use. The premise is that it offers the learner a friendly, cost effective approach to adult education program marketing and data management of learner information. As the list of stakeholders and collaborating programs grows, the value of the *EduCard™* will also.

The built in security features of the *EduCard™* will improve. Personal identifiers will be easily built into the card, making its misuse less likely.

Access to learner information is an information system concern. Common sense and substantial experience with the protection of student, financial and intelligence information can guide these safeguards.

SELECTION OF TECHNOLOGY

Several smart card technologies are being used or just coming on the market. It will be helpful to decide early in the design process which to use. The decision must address how to facilitate feasibility analysis, encourage cost analysis, and begin to show how it works.

Initial research indicates three types of individual information card technology: (1) the magnetic card, (2) the smart card, and the (3) optical magnetic card.

Magnetic Strip Card

The magnetic strip card is limited by a minimal recording capacity (576 to 1200 bits, or about 120 to 240 characters of information), and limited security features. Current credit

cards fit this model as do ATM and transit fare cards. There are about 220 million magnetic strip cards in use.[27]

The Integrated Circuit or "Smart" Card

The integrated circuit (IC) card ranges from a simple memory access card to a microcomputer smart card.

The integrated circuit (IC) card ranges from a simple memory access card to a microcomputer smart card. One distinguishing feature of the higher end smart card is that it acts like a computer, making decisions based on input and programming regarding data. This makes the card in its advanced form more than a portable information storage card.[28] It may be subject to physical problems like warping or static electricity.

The smart card contains a microchip (IC) that turns it into a miniature computer. The card's memory can store the holder's signature, picture and other pertinent information which cannot be changed.[29] Other parts of the chip can record and modify, by itself, information in its own non-volatile memory. It maintains security and data integrity by controlling read and write access authority.[30]

This is an infant technology and as such there will be major advances in the amount of information the smart card can use. Presently about 2,000 to 8,000 characters of information can be stored on a smart card. This is more than sufficient for the initial design and testing activities.

Optical Memory Card

The optical memory card features an optical recording medium embedded on a plastic credit type card. This card can read alphanumeric, audio, photographs, fingerprints and signature. It can store far more information presently than the IC card. However, information can be written to it once only; therefore it cannot be updated. Card readers are quite expensive. This is likely to make the optical memory card impractical for *EduCard™* uses.

The use of card technology comes from banking and debit account activities like transit fare cards. It has been used to facilitate economic transactions making it easier to purchase goods or use services.

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[27] ***Information Card Comparison***, Canon Optical Card Project, Canon U.S.A., [nd].

[28] Ugon, Michel, "Smart Card - Present and Future," ***Smartcard 2000***, *Op. Cit.*, pages 4-6.

[29] Macaulay, David, ***The Way Things Work***, Houghton Mifflin Company, 1988, page 352.

[30] Ugon, *Op. Cit.*, pages 6-9.

There are two issues linked to the uses of this technology--security and information needs. Cost considerations are also a factor but are complicated by the scale of use of the technology. The magnetic and smart cards are more expensive, but the read-write devices are less expensive than with the optical magnetic card.

Both the smart IC card and the optical magnetic cards are extremely secure in that they can use encrypted identifiers and eventually user recognition techniques like voice, signature, photo, fingerprint or possibly eye scan identification.

The smart card approach suggests information demands in excess of that available to the current magnetic card technology. The suggested list of *EduCard™* data elements[31] probably could require upwards of 500 characters of information with the list likely to increase over time.

The use of a general identity card, like a smart driver's license or a card that combines a range of public service and commercial functions has many attractive features. It is technically feasible for public service entitlements and user demographics and identification information to be merged with general purpose banking or financial institution type cards. Likewise medical information, next of kin, and similar health and safety information can be combined onto a general purpose card. These considerations, which presently may be technically difficult and objectionable for policy, ethical or personal reasons, should not dominate the discussions.

PARTICIPATION OF LEARNERS

A policy decision should be made on whether learner participation is mandatory or voluntary.

Several policy issues revolve around the matter of learner participation. What happens to persons who do not want to use the EduCard™?

The utility of the *EduCard™* is seizing the attention of adult learners and removing barriers to participation in available education and basic skills programs regardless of the agency or funding source. Users must feel that the card has an important value (real and symbolic) and that its use gives them a kind of special status or benefit.

Several policy issues revolve around the matter of learner participation. What happens to persons who do not want to use the *EduCard™*? Will they still receive services? How will the services differ? These concerns also have system design implications.

[31] The policy option paper on the "Integrated Adult Education Data System" suggests prototype data elements as a guide to future planning and design.

The use of the *EduCard™* must be voluntary. Procedures for assigning unique learner ID codes should be the same for all participating learners and the options made clear at the point of issuing the card.

Entitlement to receive services is determined by economic and other need-based criteria. An individual cannot be denied a service because he or she does not want to use a card which may present real fears (immigrants) or symbolic (big brother) concerns whether founded or baseless.

Learners must be encouraged to utilize the *EduCard™* by having the benefits clearly explained as part of the overall marketing strategy. A policy which initially makes the card free, but charges the learner the cost of the card plus data input costs if he or she later on wants to use the card, seems reasonable.

The access policy should not change over time. Policies which decide whether to grandfather in (do not charge) learners who initially did not select to use the *EduCard™* or similar considerations can be established later.

LIABILITY ISSUES

Early attention should be paid to the likely liability and financial issues raised by the *EduCard™* and the data system.

Liability and financial issues for service providers are inherent in the use of the EduCard™ and the integration of service programs.

Liability and financial issues for service providers are inherent in the use of the *EduCard™* and the integration of service programs. Chief among them are:

- eligibility determination and disallowed costs
- service payments and reimbursements
- *EduCard™* ownership and costs
- updating card information
- learner's responsibilities

Other financial and liability concerns will be identified in the course of implementing the integrated system.[32]

Organizational arrangements in human service delivery have been made on the basis of program, contractual or referral basis. An integrated delivery system with an implicit set of free core services poses new cost sharing, allocation, and risks associated with the learner transition through the delivery system.

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[32] We have the benefit of a substantial amount of work performed on these issues by a Michigan study group on liability and financial standards. See "Liability Issues and Options," a Workgroup Report of the Michigan Human Investment Fund Board, October 1988.

The potential liability issues should continue to be refined during the design and testing phase (1990-1993). During the testing phase, we expect that some kind of inter-agency working group of stakeholders will study these concerns. This local perspective will be the most beneficial in resolving the associated issues.

The liability and financial issues will be largely identified and addressed during the *EduCard™* testing phase. They are administrative in nature. The stakeholders should have considerable say in how these issues are resolved, recognizing that the resultant policies will have to be uniform statewide.

STANDARDS FOR LEARNER PLANS

For the *EduCard™* to be effective, common intake and assessment information should be developed on all learners. This requires a set of standards for learner plans which have a defined process, includes assessment tools that are comparable, and are broad enough to serve all the prospective learners.

Central to the EduCard™ concept is the creation of a uniform service delivery plan based upon assessment and counseling outcomes.

Central to the *EduCard™* concept is the creation of a uniform service delivery plan based upon assessment and counseling outcomes. This presumes stakeholder agreement on the criteria for plan development. The policy issue is when and how to develop these standards.

An essential part of reducing barriers to participation in adult education and basic skills training is to standardize the assessment and testing approaches. This gives all learners equal access to the range of learning choices. This may not mean that all stakeholders will use the same instruments and methods, but that (1) the general criteria and steps are similar, and (2) that there is a crosswalk (comparability) among the assessment tools.

It may be very prudent to adopt a common assessment process which will be used by all stakeholders and by all community adult education information centers. Probably the most common model is the three stage vocational assessment process for disadvantaged students.[33] This process consists of a set of formal and informal vocational assessment procedures to (1) identify personal-social traits and needs; (2) compare current competencies and skill levels; and (3) recommend learning options, based on assessment results, matching skill levels, learning program options and job requirements.

[33] *A Vocational Assessment Model for Students Served by Educational and Job Training Agencies*, Work Group on Vocational Assessment, Specialized Programs Branch, California Department of Education, April 1986. This model is refined in Woolley, Van and Janice Lane, "Developing An Occupational Curriculum for Secondary Level Educationally Handicapped Youth Through the Vocational Assessment Process," a Vocational Education Act Title II Grant, July 1, 1988.

It is standard for many education and training service providers to use different planning and assessment procedures and tools to guide learner development. These tools may be mandated (**CASAS, TABE, GATB**) or self selected.

The effort to develop a standard career/vocational assessment approach was the outgrowth of a California Department of Education goal to provide students entering the workforce after high school with the basic educational and occupational competencies for meaningful employment or postsecondary education.[34] Their approach was to define assessment as the information needed to help create an individual learning plan based on ranges of client characteristics and the provider's delivery system.

This work group, formed in 1985, developed a "comprehensive" assessment model for learners served by education and job training agencies. Referred to as the "career/vocational" model, it provides the framework for learner assessment and the latitude to utilize a range of actual testing and assessment tools.

The standardization of the staged approach to refining assessment is a important outcome. The emphasis is as much on the process of assessment as it is on the tools.

Adopting a standardized assessment approach is very important to removing barriers to learner participation in the full range of adult education and basic skills training offerings. Refinement of this process model over time and the actual instruments, tools and methods used are very important.

A separate options paper addressing "***Quality Standards and Performance Measures***" covers the actual commonly defined and agreed upon criteria for determining learner and program performance. Our role is to propose that the career/vocational assessment model be the organizing context for inclusion of actual performance measures. Our interest is beginning to adopt a flexible standard.

The movement towards more performance based assessment is due in part to the introduction of computer based, multimedia and other forms of nontraditional instruction which are not wholly amendable to ADA type measures. Over time we can expect to have far better data on learner performance among the types of interventions as well as among the providers. This presupposes that the assessment tools and strategies are reasonably consistent and that we can compare learner's skills and abilities among the assessment devices used.

[34] *Ibid*, page iv.

Likewise, with the advent of an integrated data system we can develop better data on learning styles, norms for learning expectations, and norms for learner and provider performance.

The role of the *EduCard$_{TM}$* is to permit these learner plans and assessment data to easily move with the learner anywhere within the state, and not necessarily require retesting and assessment in the process. However, this presupposes standardization of the process and comparability of the assessment tools.

New Developments and Considerations

New technologies will impact and make easier the implementation of the EduCard$_{TM}$.

The increased public policy interest in using private sector approaches to aspects of human resource development and a more marketplace method of promoting user involvement has stimulated ideas like the *EduCard$_{TM}$*.

NEW TECHNOLOGIES

The new technologies which will impact and make easier the implementation of the *EduCard$_{TM}$* and an integrated data system are aspects of computer and integrated circuit chip technology. Specifically they include computers, smart cards, and software:

Computer hardware will be a key element in the EduCard system. Key developments concerning computers are:

- Improved speed and graphics capability
- Ability to access and use digital images
- Improved capacities to store information inexpensively
- The ability to use voice commands in machine communications

The emerging integrated circuit chip technologies are described in this paper. Their evolution will lead to:

- Low cost improvements in integrated circuit card memory
- Wider acceptance of magnetic and integrated circuit card type technology[35]

[35] *Smart card 2000, Op. Cit.*

The *EduCard™* will be driven by software that can read, write and utilize the learner information in a relational database. Changes which appear eminent are:

- The increased use of object oriented programming making software modification less expensive
- The increased use of graphic interfaces, reducing training time and simplifying data entry, editing and queries
- Artificial intelligence advances, especially in "expert system" software will make it very easy to make machine based judgments regarding program eligibility and entitlements. This will enable paraprofessional personnel to serve as the intake persons and check eligibility. Routine eligibility checking, subject to verification, can be handled by the expert system software, and the non-routine cases can be certified by professional personnel.[36]

CHANGING SOCIAL AND ECONOMIC NEEDS

The transition to a lifelong learning society, driven by economic need and technological advances, is chronicled in the previous research leading to the "***Strategic Plan for Adult Education***". This analysis stresses the need to overcome a growing "skill gap":

- Economic and technological change is increasing the skill requirements of work and daily life.
- California faces serious skills deficiencies in an increasingly global economy.
- The changing workforce with at least one estimate that 15 percent (3.1 million persons) of the California population has literacy performance deficiencies.

Combine the skills gap problems, the level of school dropouts, and the changing demographics in California, and we have the need to seriously strengthen the delivery of adult education and basic skills training.[37]

[36] Coursey, David, "New tech not just acronyms; offer competitive advantages", *MIS Week*, November 13, 1989, page 58.

[37] These data and trends are clearly set forth in the *California State Plan for Adult Basic Education*, Adult Education Unit, Division of Youth, Adult, and Alternative Educational Services, California Department of Education, June 9, 1989.

Key Findings of Literature Review

The literature review and background research examines (1) the models for the *EduCard™*, (2) the nature of the card technology, (3) current uses and projected uses.

An overall data system that links collaborating programs, without imposing undue burdens on providers, is needed.

***EduCard™* Models.** There are several experiments which will give guidance for the *EduCard™* with the Michigan Opportunity Card serving as the initial model. Its development in California is likely to take a different approach, but will rely considerably on their experiences and learnings.

How the Card Works. The smart card technology has three variations which are discussed. The integrated circuit smart type card receives the most attention.

Current and Future Uses. Current and future uses of the smart card technology are based on demands for being able to read and write more information to and from a mobile credit or debit type card. The USDA experiments which enable food stamp and other welfare recipients to access cash or food entitlements directly and their recently smart card feasibility interest should be watched with interest as should the Michigan Opportunity Card development.

The current adult education data system needs to be upgraded to reflect persons served, actual learning outcomes and performance, and learner demographics. Presently there is no inter-agency data system, other than those that are program specific. An overall data system that links collaborating programs, without imposing undue burdens on providers, is needed if the broader concept of learner access to services is implemented. The likely programs and stakeholder agencies are identified.

Chapter 3

Proposals to Implement Design and Testing of *EduCard™*

*Five proposed policy options drive the initial design of the **EduCard™** and set the stage for refining its use.*

This chapter identifies proposals for initial planning decisions. These proposals should be evaluated against common criteria that reflect their likely usefulness and value to the evolving adult education and basic skills delivery system. This section outlines the criteria to evaluate the proposals and examines each proposal against the descriptive criteria. Each proposal is examined in terms of its likely positive and negative impacts.

Criteria for Evaluation of Proposals

The criteria for evaluating the options are the same for data system related options papers. These criteria are:

(1) Improve Learner Access
(2) Stakeholder Acceptability
(3) Ease of Use
(4) Maintain Learner Privacy
(5) Cost Effectiveness
(6) Improve Accountability

While there is some implied overlap among the criterion, they represent the critical features that begin to determine the exact nature of the *EduCard™* and its uses. **Exhibit 4** outlines the criterion and their basic features.

Exhibit 4

CRITERIA FOR EVALUATING THE PROPOSALS

IMPROVE LEARNER ACCESS

- **Ease Assessment and Referral**
- **Reduce Paperwork**
- **Increase Program Choices**

STAKEHOLDER ACCEPTABILITY

- **Minimize Administrative Burden**
- **Reduce Paperwork**
- **Improve Performance Measurement**

EASE OF USE

- **Minimal Staff Training and Retraining**
- **Automated Electronic Reporting**
- **Built-In Security**

COST EFFECTIVENESS

- **Minimize Information System and Data Collection Costs**
- **Minimize Hardware and Software Costs**

IMPROVE ACCOUNTABILITY

- **Improve Performance Measurement**
- **Standardize Data Collection**
- **Reduce Analysis Costs**

These five criterion will guide the development of and analysis of initial planning proposals.

The Pros and Cons of Proposals

This section discusses the pros and cons of five proposals. These proposals deal with the following issues:

(1) Learner Privacy

(2) Which Type of Technology to Pursue

(3) *EduCard™* Use

(4) Liability and Financial Issues

(5) Standards for Assessment

The previous chapter identified these five basic issues. They will drive the continued design and testing of the *EduCard™*.

PROTECT LEARNER PRIVACY

Learner privacy is a paramount issue. It is recommended that significant commitment be given to ensuring that personal information not be misused.

Learner privacy is a paramount issue. It is recommended that significant commitment be given to ensuring that personal information not be misused.

Proposal 1
PROTECT LEARNER PRIVACY

The issue of privacy is a matter of concern to professional, learner advocates, and laypersons alike. Careful planning and design must severely limit access to personal information.

- Policies and procedures regarding access to personal information at the local and state levels must be very clear.
- Computer based access must be multi-level with most information only available at the summary level or personal information be only programmatic.
- Learners, when they receive their *EduCard™*, should be advised how the information will be used and by whom.

Nature and Value of Positive Impacts

The value of the *EduCard™* as a symbol for consumer driven service delivery and as an inexpensive tool for initiating and maintaining learner information has been discussed. As described in **Exhibit 3**, the learner is expected to go through a series of decision steps and activities in the course of receiving learning services. At each important point information will be collected. This information collection can be substantially automated, with the exception of new information being written to the *EduCard™*. These decision points, depending upon the collaborating stakeholder agencies, are likely to include:

- outreach
- initial intake
- assessment
- entitlement eligibility
- special testing, if required
- referral
- plan
- receipt of supportive services
- adult education and basic skills services
- pre and post services testing

- employment preparation
- job placement
- training and retraining

Having the capacity to readily collect and store information at each step will provide significant advances in our ability to design strategies to recruit and retain the hard to serve, and to develop a reliable database of expected performance levels given variations in types of programs, modes of instruction, and support service demands.

It will minimize repetitive administrative data collection and can be utilized for attendance as well as performance information. It will streamline program audit and compliance record keeping and reduce administrative burdens, while yielding organized, quality information on the learners being served, and (logically) therefore those not being served. These data for adult education are difficult to obtain routinely.

The *EduCard™* will facilitate identifying program repeaters and program cheaters. While this is not a primary function, depending on the unique identifiers used, the learner who is ineligible for particular program services can be identified.

The need for personal and summary learner information is primarily at the aggregate or characteristic (sex, age, race) level. Assigning a personal identification number (PIN) as a surrogate for the person is the best protection. Access to PIN identities can be controlled. For example if a program staff person can only access an individual by name, they can be restricted to only a limited range of learner information. The California Community Colleges use the social security number as the PIN. New technologies offer some exciting alternatives.

Costs of Operation and Negative Impacts

The costs associated with the *EduCard™* and learner security are:

1. The card distribution and its replacement
2. Access to card readers and of the learner database
3. Privacy features as a part of software and developmental costs
5. Data transmission
6. Data entry and management

Very rough calculations suggest that these costs per learner over three years[38] will be no more than $20 with the cost

[38] Three years is used as the length of time to amortize the costs of hardware, software and training.

decreasing as the cost of the *EduCard™* drops from around $12.00 to $3.00.[39] Policies regarding *EduCard™* replacement when lost can change this.

The privacy requirements will not change these costs to any degree. They should be considered as part of the design specifications and calculations of these more automated costs compared with more traditional data collection should be made.

Minor negative privacy impacts revolve around the extent and manner to which the learner will use the card over time. As in any experimental or demonstration setting, these impacts may decrease as the approach to data management becomes more accepted. However, there is a slight possibility of the misuse of the cards. Again newer personal identifier technologies like signatures, fingerprint, eye scans may not be unthinkable in the near future.

USE CIRCUIT CARD TECHNOLOGY

Of the learner owned access and storage media now available, the integrated circuit card appears to be the most promising.

Of the learner owned access and storage media now available, the integrated circuit card appears to be the most promising.

Proposal 2
USE INTEGRATED CIRCUIT (IC) CARD TECHNOLOGY

While not absolutely necessary, it would be helpful if we can settle on one type of smart card technology. Initial research indicates that the most versatile and least expensive memory card is and will be the integrated circuit card. Its advantages include low cost, security, and inexpensive machine reader costs

Nature and Value of Positive Impacts

The costs, utility and security of using integrated circuit cards are as follows:

Cost. The IC card is the most versatile of the three memory card technologies we have identified. Over time the costs per character of information will fall and the amount of

[39] The costs of these cards, depending on the technological advances, will decrease with increased volume. This plus the rapid increase in available memory makes it hard to estimate their cost. Current costs, according to Allen Gandy, are about $12 for 16K bits (2000 characters) of available memory.

useable information will grow. The cost of the peripheral card reader is currently reasonable and will decrease in cost.

Utility. The IC card is still not in widespread use. However, its potential memory capacity, the add on features like the calculator and multifunction possibilities makes it the most useful of the three alternatives.

Security. The encryption features and emerging user recognition abilities makes the IC card more secure than current ATM type cards.

Nature and Value of Negative Impacts

The nature and importance of negative impacts associated with integrated circuit cards are as follows:

Accidental Damage. One resource suggests that the IC cards are vulnerable to accidental static electricity damage and warping. These are matters for further research.

Accidental Loss. All cards, regardless of their memory features and capacities, are subject to loss. The most important thing is that the card replacement, regardless of who bears the cost, is not expensive. Likewise, the ability to access and input replacement and new learner information must be simple and possible from remote locations. Again this is not a function of card type but of system design.

OPTIONAL PARTICIPATION

Use of the EduCard™ should be a right and opportunity, not a requirement.

Use of the *EduCard™* should be a right and opportunity, not a requirement. The *EduCard™* should be readily available, but its use should be voluntary.

Proposal 3
OPTIONAL PARTICIPATIONS

The use of the *EduCard™* should be voluntary. Data entry routines should be able to enter learner information directly into the computer as well as via the *EduCard™*. Special bonuses should be considered to encourage its use. This choice should not affect data quality, and may reduce "big brother" type fears.

Nature and Value of Positive Impacts

Individuals cannot be excluded from a program service because they will not use the *EduCard$_{TM}$*. They can be given inducements to use it, and can reasonably be expected to pay if later on they determine the advantages and wish one. The major positive impact is to indicate that the card is a useful tool; but that because it is not required, it is a tool that will not be misused. Its use should be treated matter of factly with the understanding the many learners have entitlements to basic skills learning and that their dislike or distrust of the *EduCard$_{TM}$* cannot preclude access.

Nature and Value of Negative Impacts

Making use of the *EduCard$_{TM}$* optional increases data collection costs and will result in the likely loss of some learner data.

The learner and the provider will share in the additional burden of two data collection measures. It will add to the administrative burden, but may be less, than if there was no *EduCard$_{TM}$*.

Involvement of local stakeholders is critical to the successful design of the EduCard$_{TM}$.

INVOLVE STAKEHOLDERS

Proposal 4
INVOLVE INITIAL STAKEHOLDERS IN DETERMINING LIABILITY AND FINANCIAL POLICIES AND PROCEDURES

A multi-agency service system implies sharing of costs and liabilities. Liability comes with decision making. Costs for the *EduCard$_{TM}$*, personal information verification, disallowed program costs, and other issues will require local common sense and consensus. Development of the *EduCard$_{TM}$* should involve local stakeholders.

Nature and Value of Positive Impacts

The introduction of the *EduCard$_{TM}$* and other strategic recommendations does not happen in a vacuum. Legislative, policy and program changes will continue to occur. The participation of the stakeholders, especially in the 1990-1993 design and testing phase is important to determining realistic responses to liability and financial issues associated with the use of the *EduCard$_{TM}$*.

It will be difficult, in spite of the Michigan experiences, to identify the policy and procedural issues. Further, the participating stakeholders should not be presented with policy *fait accompli* without their considered advice.

Nature and Value of Negative Impacts

It is less time consuming to propose policies and procedures and allow time for providers and other interested parties to reply.

ADOPT CAREER ASSESSMENT MODEL

The EduCard$_{TM}$ should be designed to function within a comprehensive and explicit assessment and placement process.

The *EduCard$_{TM}$* should be designed to function within a comprehensive and explicit assessment and placement process.

Proposal 5
ADOPT CAREER ASSESSMENT MODEL

The ability to contrast and compare the appropriateness and performance of learners in various learning settings assumes a common assessment process. While not all adult learners may need assessment, those that do should be entitled to a comparable approach that is continually refined. Thus, the assessment instruments should be capable of comparison; the process should accommodate a wide range of learners; and an explicit process should be the focus for refinement as needed

Recommendation 7, ***Quality Standards and Performance Measures***, seeks to produce a uniform, comparable approach to learner assessment and learner achievement. It will permit the *EduCard$_{TM}$* and the community information services to provide prospective learner and the providers with quantitative information on provider services and achievements with different types of learners.

This paper does not specify this assessment model. However, it does recommend the shell or process within which these measures, in part, can fit (**See Exhibit 5**).

The term "career" addresses assessments focused on the learner's career development process. The first stage is preliminary screening using primarily career and vocational interest inventories and paper-pencil aptitude tests.

Exhibit 5
PROPOSED *EDUCARD™*
THREE STAGE PROCESS

Stage 1:	**Preliminary Screening**
Stage 2:	**Initial Agency Screening**
	. Part A - Prevocational Assessment
	. Part B - Basic Vocational Aptitude
State 3:	**Vocational Exploration and Work Sampling**

Stage I screening can be integrated into career guidance classes or workshops. The information helps learners in career decision making with counselors or advisors helping examine the realism of these decisions. An ideal plan includes local labor market implications, education and training options and a proposed sequence of learning needed to reach designated goals.

Stage II addresses formal and informal assessment techniques used to screen learners into job training or placement programs like vocational education, ROP, JTPA, and GAIN. The targeted learners are persons identified in Stage I as not being ready for enrollment or placement. These assessments include interviews, structured observations, interest inventories and problem solving vocational aptitude tests.

Stage III is work sampling and vocational exploration for persons who are still shown to be not ready for enrollment or placement in learning or employment. These assessments are more rigorous job task and work performance in nature.s

Nature and Value of Positive Impacts

The use of *EduCard™* presumes cross agency standards in assessment and terminology. Cross agency data must be amenable to comparison, though there is no need for nor possibility of completely uniform procedures.

The three stage career assessment model is generally accepted by the potential range of education and basic skills stakeholders. It provides a process and structure for vocational assessment and plan preparation, but leaves room for the inclusion of new and more refined assessment and quality standards.

Nature and Value of Negative Impacts

Adopting a broadly defined process can be said to preclude the adoption of more rigorous assessment and testing standards.

CROSS-MATRIX ANALYSIS AND DISCUSSION

There are five initial policy planning proposals. They are:

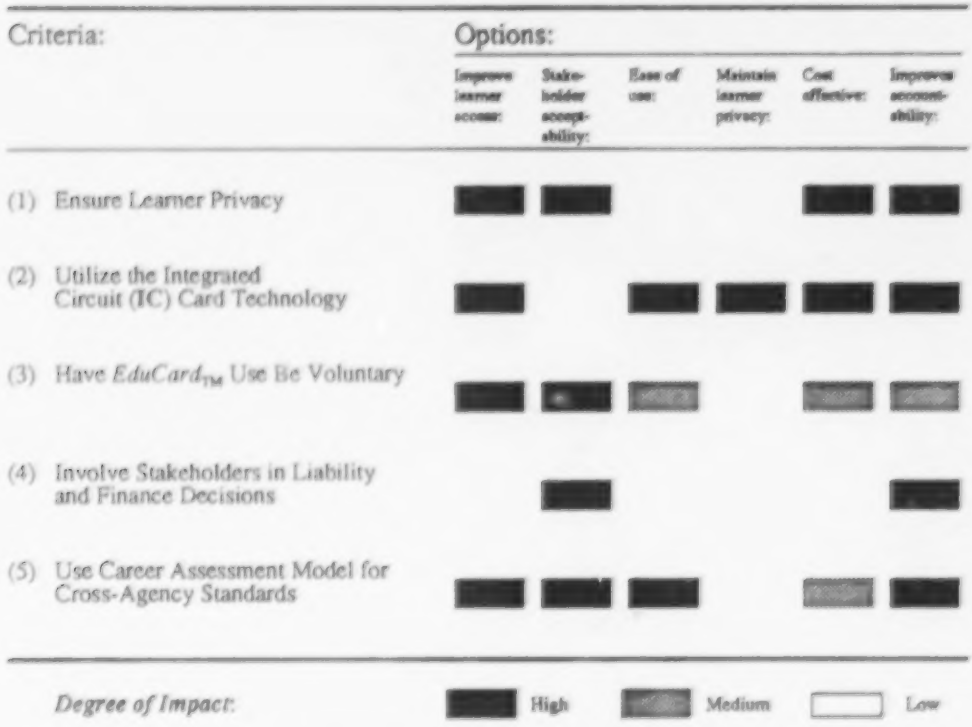
- Pay Strict Attention to Learner Privacy
- Use the Integrated Circuit Technology
- Make Use *EduCard*$_{TM}$ Voluntary
- Involve Stakeholders in Liability and Financial Policy Decisions
- Standardize the Assessment and Testing Process Using the Career Assessment Model

It is expected that this paper will effect other key policy issues to be included in preparation for the next document. The dynamic link between the integrated adult education data system, the community information services, and the *EduCard*$_{TM}$ cannot be stressed enough.

Exhibit 6 compares the recommended options against the six evaluation criteria. Readers are urged to reassess these recommended in light of the evaluation criteria or identify other useful criteria.

Exhibit 6

ILLUSTRATIVE CROSS-MATRIX COMPARISON OF RECOMMENDED OPTIONS VIA COMMON CRITERIA



NOTE: Assessments within each criteria should also include negative impacts (*e.g.* moderate negative impact and strong negative impact).

Advisory Recommendations

The preceding proposals have been reviewed by the Data and Information Subcommittee of the Interim Steering Committee.[40] Based on this review, a number of additions, clarifications and changes have been made to staff proposals. One proposal has been added and one proposal has been moved to another policy options paper. The following are the staff and subcommittee recommendations.

ACTION ON PROPOSAL 1
(New Proposal)

Adopt New Proposal 1. This new proposal identifies the *EduCard™* as serving multiple agencies across the state with the possibility of local additions to the contents of the card.

Proposal 1
ESTABLISH *EDUCARD™* AS A MULTI-AGENCY ACCESS CARD MAINTAINED AT STATE LEVEL WITH POSSIBILITY OF LOCAL AUGMENTATION

In order for the *EduCard™* to be effective, it must be used statewide by all participating stakeholders. The *EduCard™* will be a multi-agency card and will have a common set of data elements which can be augmented by local stakeholder consortia. Key features will be:

- A statewide standard for the card will be set.
- These state standards should be carefully thought out to minimize the need for revision.
- All participating stakeholder consortia will use the standard data elements.
- New elements can be added, subject to available memory, by local consortia.

[40] Members of this subcommittee in alphabetical order are: Charles Carlson, Dean of Instruction, Bakersfield College; Ronald Gristock, Vice President, Community Affairs, Wells Fargo Bank, San Francisco; Thomas Johnson, Assistant Superintendent, Hacienda La Puente Unified School District, La Puente; Henry Page, Principal, Palo Alto Adult School; Dick Renes, Unit Manager, IBM, Costa Mesa; Frances Ruiz, ESL Teacher, Corona-Norco Adult School; Prany Sananikone, Assistant Director, United Cambodian Community, Inc., Long Beach; and Gary Strong, State Librarian, California State Library, Sacramento.

ACTION ON PROPOSAL 2
(Originally Proposal 1)

Accept Proposal 2 (as revised). Revise Proposal 2 to read as follows:

Proposal 2
PAY STRICT ATTENTION TO LEARNER PRIVACY AND RIGHTS IN THE *EDUCARD$_{TM}$* DESIGN

The issue of privacy is a matter of concern to professional, learner advocates, and laypersons alike. Careful planning and design must protect personal privacy and severely limit access to personal information.

- Policies and procedures regarding access to personal information at the local and state levels must very clear.
- Computer based access must be *multilevel* with most information available only at the summary level, and *personal information available only at the program level.*
- Learners, when they receive their *EduCard$_{TM}$*, should be advised how the information will be used and by whom.

ACTION ON PROPOSAL 3
(Originally Proposal 2)

Accept Proposal 3 (with minor revisions as indicated in brackets) for short term. Based on subsequent feasibility studies, specific pros and cons and technical capabilities of "smart card technology," especially privacy and security capabilities, should be added to the proposal.

Proposal 3
USE INTEGRATED CIRCUIT (IC) CARD TECHNOLOGY

[Integrated circuit "smart cards" should be used for the *EduCard$_{TM}$*.] Initial research indicated that the most versatile and least expensive memory card is and will be the integrated circuit cards. Its advantages include low cost, security, and inexpensive machine reader costs.

ACTION ON PROPOSAL 4
(Originally Proposal 3)

Accept Proposal 4 (with change in title). Revise Proposal 4 to read as follows:

Proposal 4
MAKE *EDUCARD$_{TM}$* USE OPTIONAL

The use of the *EduCard$_{TM}$* should be voluntary. Data entry routines should be able to enter learner information directly into the computer as well as via the *EduCard$_{TM}$*. Special bonuses should be considered to encourage its use. This choice should not affect data quality, and may reduce "big brother" type fears.

ACTION ON PROPOSAL 5
(Originally Proposal 4)

Accept Proposal 5 (as proposed).

Proposal 5
INVOLVE INITIAL STAKEHOLDERS IN DETERMINING LIABILITY AND FINANCIAL POLICIES AND PROCEDURES

A multi-agency service system implies sharing of costs and liabilities. Liability comes with decision making. Costs for the *EduCard$_{TM}$*, personal information verification, disallowed program costs, and other issues will require local common sense and consensus. Development of the *EduCard$_{TM}$* should involve local stakeholders.

ACTION ON PROPOSAL 6
(Originally Proposal 5)

Move Proposal 6 to Policy Option Paper 3. This proposal will become Advisory Proposal 7 of the *Community Adult Education Information Services Policy Options Paper 3*.

Chapter 4

Conclusions and Future Actions

These policy proposals and the upcoming feasibility analysis will enhance the development of the ***EduCard***$_{TM}$ *and elaborate the links of tomorrow's adult education information infrastructure.*

This paper addresses fundamental policy issues that will guide the development of the *EduCard*$_{TM}$ model. The process for developing, reviewing and enacting the strategies and short term policies will have four reoccurring steps in which policy options and proposals are developed, reviewed by agency heads for their acceptability, and then adjusted until they are acceptable to the heads of collaborating agencies.

The further development and analysis of the recommended *EduCard*$_{TM}$ issues and options will be performed by the Adult Education Institute for Research and Planning under the guidance of the Interim Steering Committee and its subcommittees. The five proposals presented in this paper will be reviewed, revised and analyzed further during the feasibility analysis to gain clarity, acceptance to basic skills agencies, the business community, learners' groups and other stakeholders.

Any policy recommendations of the Interim Steering Committee will need to be reviewed by State Superintendent of Public Instruction, Bill Honig, and California Community College Chancellor, David Mertes, as well as heads of other participating agencies. The Institute staff and consultants will work under the guidance of the Interim Steering Committee to reconcile the requirements, concerns and differences of participating agencies.

This review and discussion process is designed as a progressive cycle of public comment and dialogue among agency heads, Steering Committee Members and Institute personnel.

The time period for this feasibility analysis is about four months. The pace quickens--but crucial decisions are made.